

WARS 75th History Article 1 *Our Archives and Early Civil Defense*

Dan Brown W1DAN

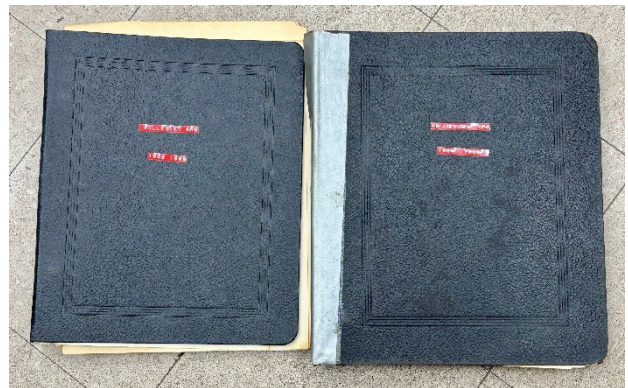
In our 2025-2026 radio club season we are celebrating our 75th anniversary! With the help of our 75th Anniversary Committee that includes Scott KK6IK, Scott WA1TEW, Charlie WA3ITR and myself, this year for each Spark Gap newsletter we will write about our history, highlight activities the club enjoyed in the past and share our rich heritage. I have held a long-term interest in saving our history and this year we will enjoy that effort.

This article explores our archives and the early history before the club was created, starting with Wellesley Civil Defense in World War II. The early Civil Defense efforts show how seriously the town took a potential bombing or invasion and was the basis of the later 1950s Civil Defense system in America of which our club participated in. A few of our future radio club members were involved in the early 1940s and they continued in the 1950s and later. I will write about the club's founding in the next issue and will carry on telling our story in future Spark Gaps.

For this article, I perused our newsletters and binders, The Wellesley Townsman's online archives, documents at the Wellesley Free Library and Newton Library, past Callbook directories, my vintage QST collection, past club member Harry McDade W1LMU's photos and documents, a photo and an interview I did with friend and founding member Ted Hale W1FFO in the 1990s. I also scrubbed the Internet and had good assistance and conversations with Scott KK6IK who used online AI tools to fill in a few gaps. If you have any further information, please let me know.

Archives

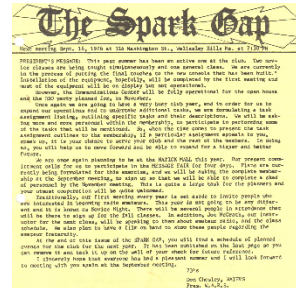
The Wellesley Amateur Radio Society has an incomplete set of archives, most of it at my QTH in Natick. Over the past 25 years items were given to me by Barb N1ICQ, Arline W1LIO, Elaine KB1IBF, Barry N1BAN, Don NT1L, Nels K1UR and others. We have scant documentation between 1952 and 1964, some binders of minutes and treasurer's reports from 1964 to 1969, a few photo prints from the 1960s to the 1980s, and newsletters from about 1976 on. I scanned the photos we have, and many of our paper newsletters from the 1980s and early '90s were scanned by myself and Don KB1OTQ about 15 years ago. In August I spent three days scanning the paper newsletters we have from 1976 to 1985 (some 88 issues).





A young Tom N1CPE purchased a camcorder in the 1980s and started taping some of meetings and events. A couple of years ago I transferred the VHS and DV tapes to MP4 video files. Eventually all our electronic newsletters, photos and videos will be available via our website on DLARC.

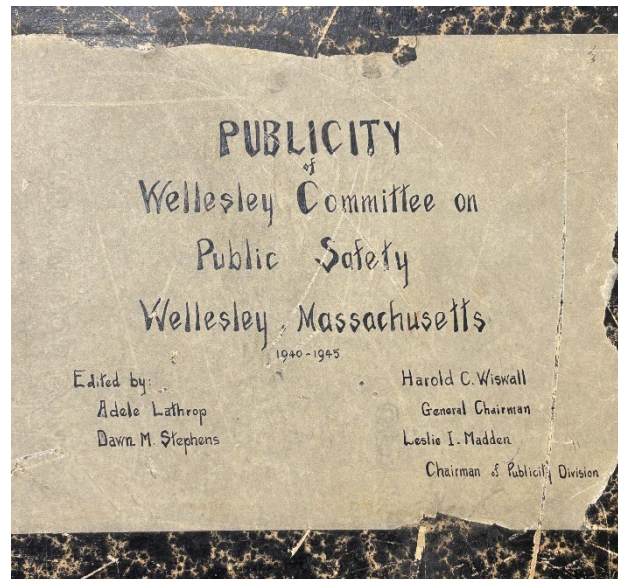
In the old binders Don NT1L gave me are minutes of the monthly meetings, correspondence with the town of Wellesley, the ARRL, Boston FCC and even a request to see the new WBZ-TV tower at Cedar Street in Needham in the 1960s (where I now work for WGBH-TV). There is also some documentation of the Town of Wellesley's Civil Defense efforts during and after the war at the Wellesley Free library, and some articles in old Wellesley Townsman newspapers, but most importantly the club's history is documented in the monthly Spark Gap newsletters, many of the old ones saved by Nels K1UR.



World War II Civil Defense

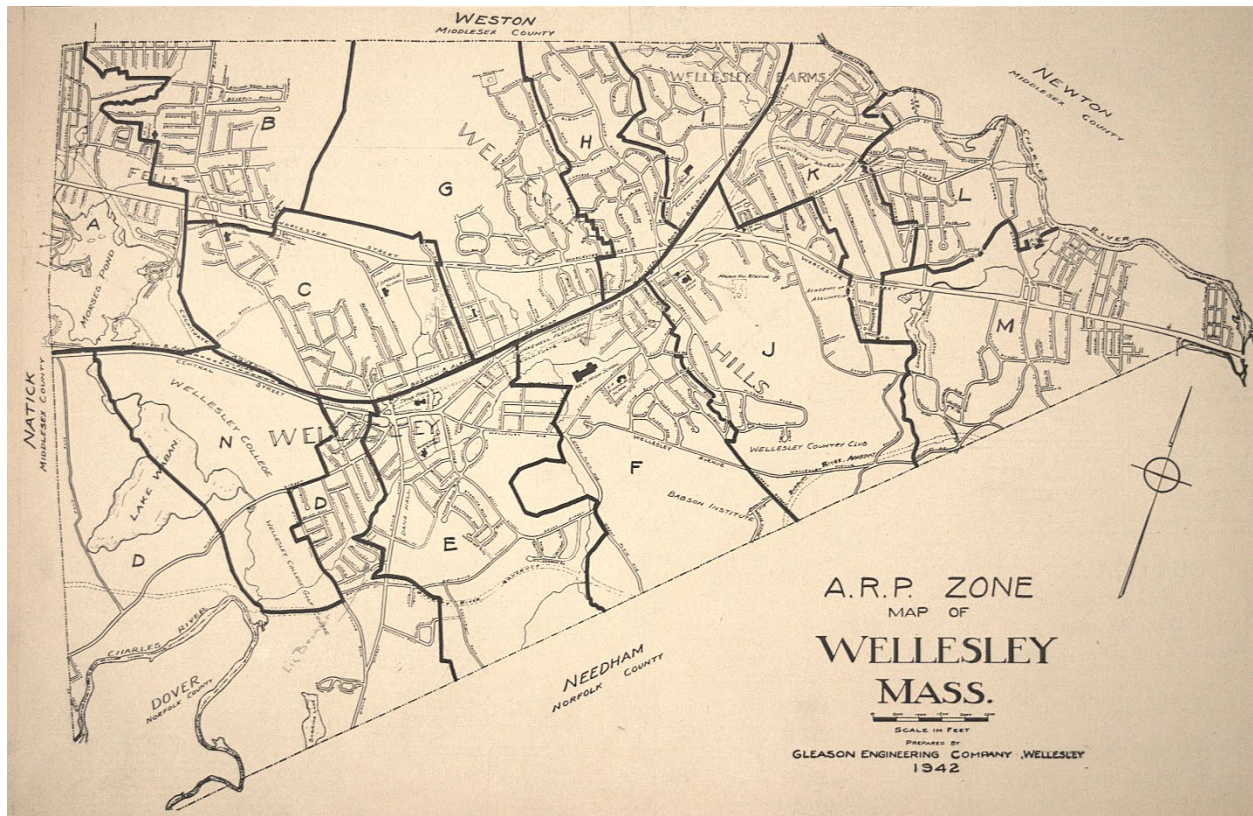
Much of the town's Civil Defense efforts during World War 2 are in a large newspaper clipping book located in the deep archives of the Wellesley Public Library that Information Services manager Tyson Bolles dug up for me. They also have annual Town Reports that have a little information.

I learned that in June of 1940 Wellesley Civil Defense was formed with Chairman (and Wellesley Selectman) Harold C. Wiswall who appointed communications subcommittee



chairman James G. Moir (later W1URJ after the war), who managed the town's volunteer amateur radio operator's civil defense efforts.

On August 23, 1940, the Massachusetts Committee of Public Safety was resurrected, and Wellesley was part of Massachusetts Sector 4. They recommended that Wellesley have a means of communications other than telephone. In October the selectmen voted to purchase 20 shortwave radio sets to cover the town and was linked with the Newton Warning Center as Wellesley supplemented Newton.



Wellesley's Civil Defense 14 Air Raid Precaution zones as of 1942

On May 20, 1941, the federal Office of Civil Defense (OCD) was created to coordinate national and local defense efforts, with Boston being Region 5 as one of the nine regional offices in America.

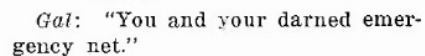


After Pearl Harbor in December of 1941 as the United States entered World War II the Wellesley Committee on Public Safety was formed to protect the town from a potential foreign bombing or invasion. The Committee organized town resources and volunteers of the town that was divided into 14 Air Raid Precaution zones for air raid management. Run by mainly town staff and volunteers, the town departments and Civil Defense worked with the Red Cross, local schools and the volunteers. As of

June 1941, there were 1000 town volunteers, quickly reaching 2,500 and a Wellesley Defense School was set up in 1942. Other cities and towns across the United States were doing the same, including nearby Newton who led the sector.

Amateur radio transmissions were banned by the FCC for the duration of the war in January of 1942. To back up the telephone service for civil defense to communities and support local air wardens on May 28, 1942, the national Civil Defense *War Emergency Radio Service* (WERS) was authorized by the Defense Communications Board, created by the FCC and the Office of Civil Defense (OCD) to provide communications rules and regulations (i.e. structure) for air raids and natural disasters. Amateur radio operators with Class A or Class B licenses were encouraged to participate as emergency coordinators or radio aids. Boston was a warning district that Newton reported to, and Wellesley reported to Newton who earlier built a larger system under the guidance of the state.

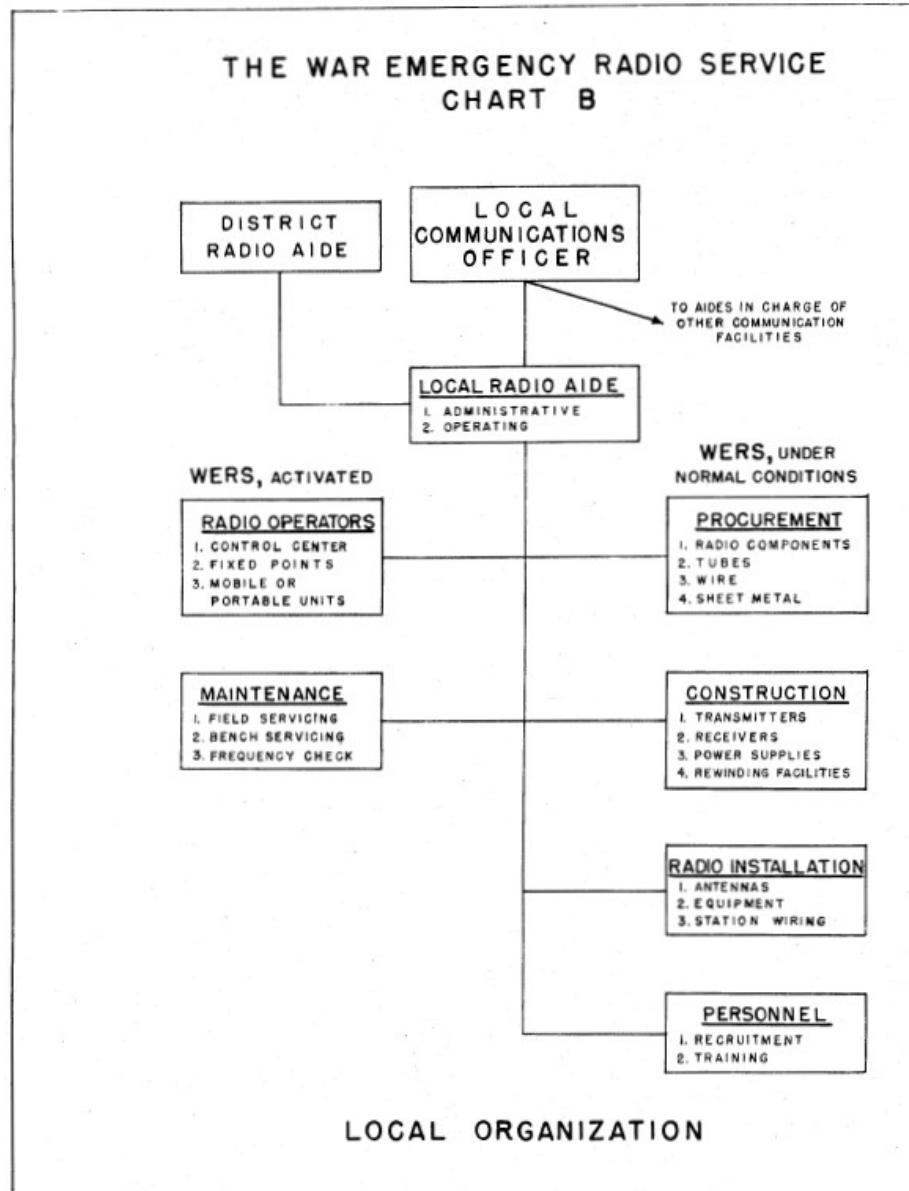
According to the December 1942 OCD publication 3040 *The War Emergency Radio Service*, The Office of Civil Defense required that each area based on air



THE WAR EMERGENCY
RADIO SERVICE
CIVILIAN DEFENSE STATIONS

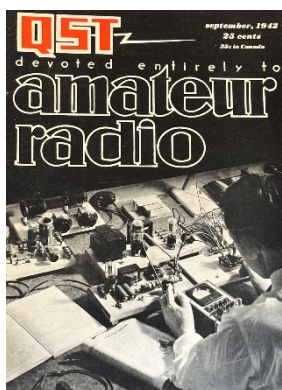


U. S. OFFICE OF CIVILIAN DEFENSE
Washington 25, D. C.



War Emergency Radio Service local organization as of December 1942

Of particular interest is the article *Massachusetts Civilian Defense Radio* in the September 1942



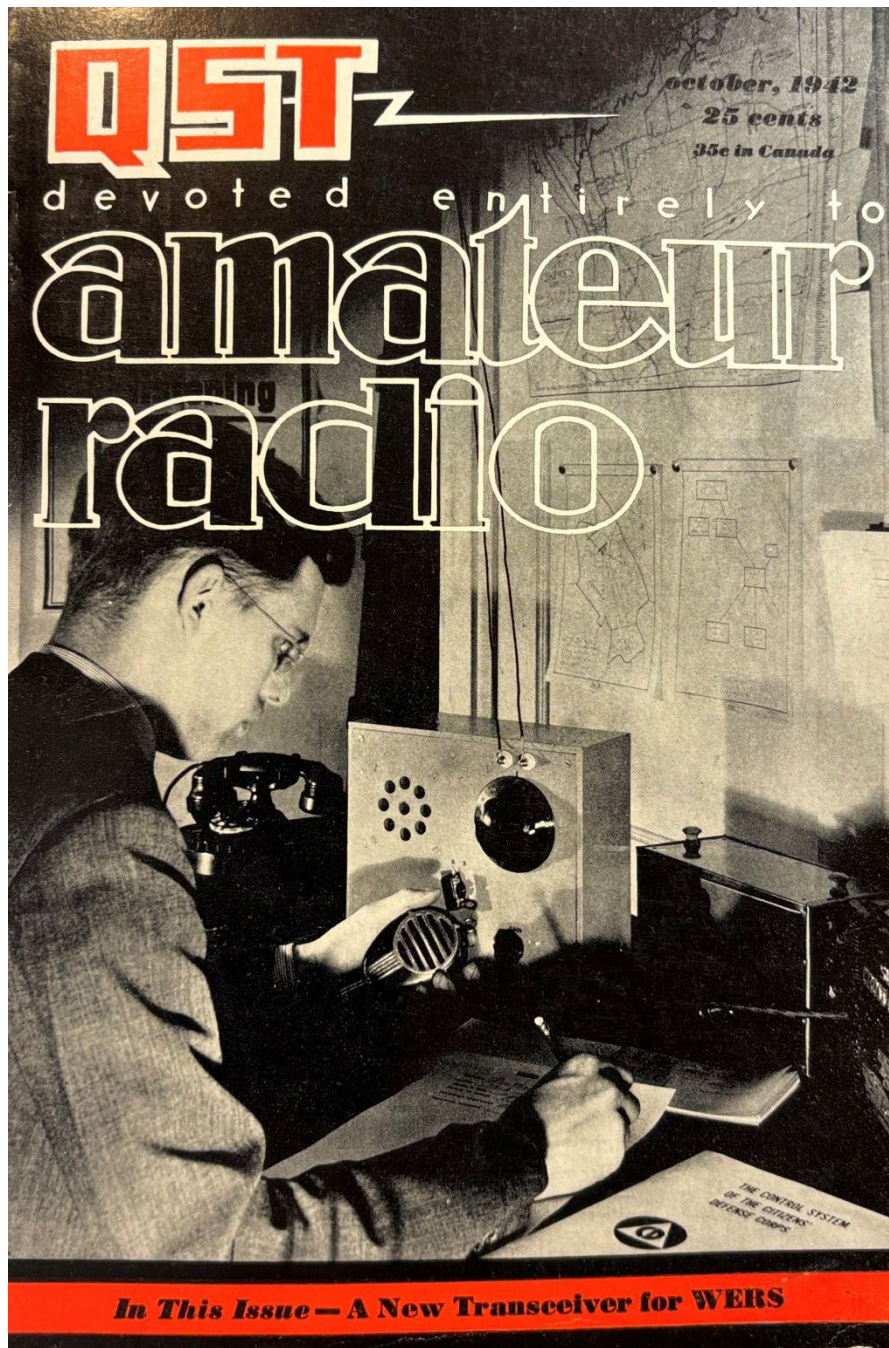
QST by John Doremus W3EDA/1 of MIT and the Massachusetts headquarters radio department of the Committee of Public Safety. John described the state's organizational plan and the civilian defense radio network before the war, and how they aligned it with WERS efforts.

Both two-way radio systems and a dispatch channel were used. Receivers were set up at police and fire stations, schools, with the OCD District Warning Center serving the dispatching. Massachusetts was organized by districts under the guidance of the state's Public Safety Council, and they created a state-wide master frequency plan to reduce interference between nearby district control centers, an early form of

frequency coordination.

<i>Suggested Channels for War Emergency Radio Stations in the 112-116-Mc. Band</i>	
<i>Channel</i>	<i>Center Frequency</i>
A.	112.1 Mc.
B.	112.3 Mc.
C.	112.5 Mc.
D.	112.7 Mc.
E.	112.9 Mc.
F.	113.1 Mc.
G.	113.3 Mc.
H.	113.5 Mc.
I.	113.7 Mc.
J.	113.9 Mc.
AA.	114.2 Mc.
BB.	114.6 Mc.
CC.	115.0 Mc.
DD.	115.4 Mc.
EE.	115.8 Mc.

Massachusetts C. D. frequency allocations are close to what WERS used (QST September 1942, author's copy).



October 1942 QST cover article on a WERS transceiver (author's copy)



*Abbott TR4 transceiver uses an HY75 tube as an oscillator for 20 watts output on 112Mc "UHF"
(from http://wd4eui.com/Abbott_Instruments_TR4_Transceiver.html)*

Example portable radios for mobile (automobile or plane, including Civil Air Partrol), zone post and control centers could have included a Harvey UHX-10, Abott TR-4 or DK3, or homebrew three-tube AM transmitters using a 6V6 tube or similar. Receivers were often homebrew super-regen or commercial receivers such as the then popular National 1-10 super-regen that used the new acorn tubes. A few superhets were used.

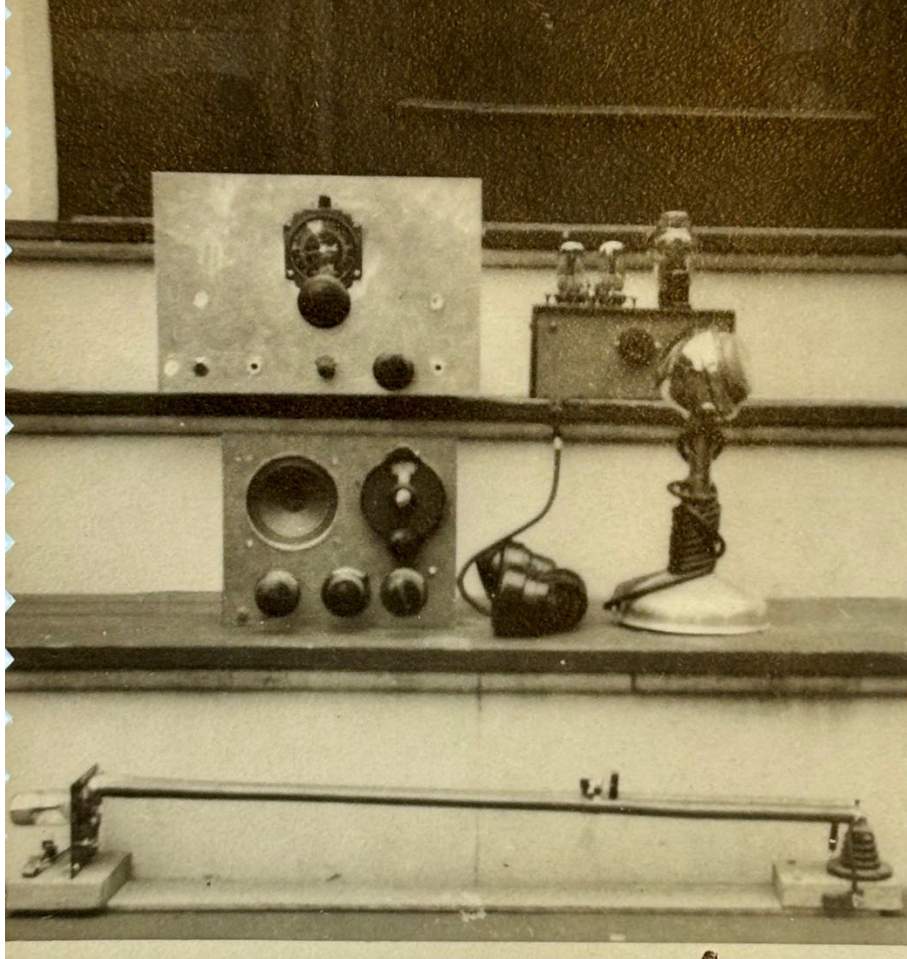


Typical homebrew WERS mobile radio (Library of Congress photo)

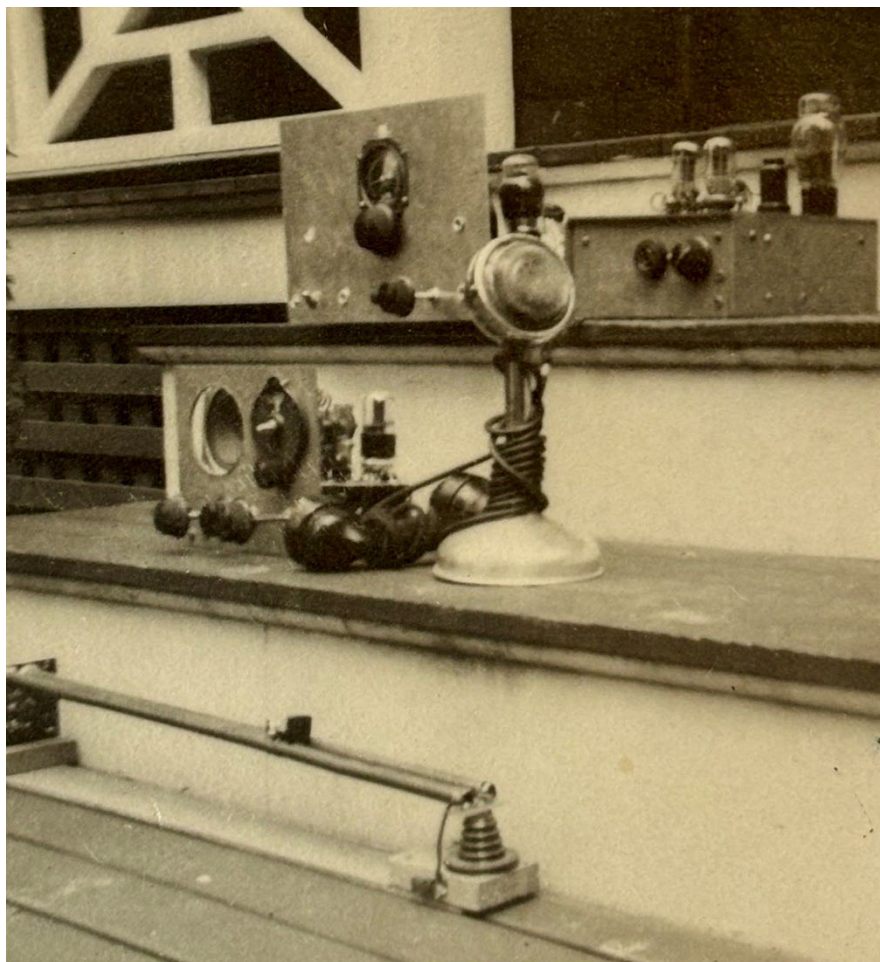


A National 1-10 VHF super-regenerative receiver that uses 954 and 955 acorn tubes

Harry McDade W1LMU (SK) made two transceivers way back then in Waban. Harry was a member of Newton Civil Defense and later a WARS member.



W1LMU 112Mc and 224mc radios as of December 7, 1941. Note the $\frac{1}{4}$ -wave parallel shorted line oscillator at the bottom step that provided a high-Q circuit. A UHF signal was often measured by Lecher wires back then (author's collection).



Side view of W1LMU radios as of December 7, 1941 (author's collection).

Harry photographed his rigs on December 7, 1941, at 8PM, the day the Japanese attacked Pearl Harbor. Harry wrote on the back of one of the photos:

Top Step: 112mc RX. 7A4 detector 6F6 audio. TX push-pull 7A4's, no condenser in tank circuit. 6C5 speech amp and 6L6 modulator. 8-12 watts input.

Second step: Transceiver 6J5GT to 41 tube. F-1 handset. F-1 in a home-made desk stand.

Bottom step: 224Mc line oscillator with 7A4 tube.



Harry W1LMU registered for the draft in July of 1941. He entered the service as a private in the Army Air Force and was sent to the 576 tech squadron, training squad 41 in Miami Beach in May of 1942 for radio (possibly radar?) training.



After the war Harry was sent back to Boca Raton Field 3501 Base unit in November of 1945 as an instructor. It was the only AAF secret radar training facility. He must have taught radar there as Harry was good with VHF, UHF and microwaves.

In the early 1950s Harry worked at Pickard and Burns in Needham, continued his efforts with Newton Civil Defense, taught ham classes throughout the 1980s and became a WARS member. But back to our history of WERS.....



WERS control point radios often had higher power either in a Master Oscillator Power Amplifier (MOPA) circuit or a rare crystal source with a power tube such as an HY75 to create around 25-watts of AM. Tight frequency stability of 0.3 or 0.1% was specified, requiring the measuring of each radio's frequency and stability at these newer "UHF" (today's VHF) frequencies.

Measurement was done by using a frequency meter or comparing the transmitter to a crystal oscillator as frequency counters did not exist. Antennas were usually home-made $\frac{1}{4}$ wave or $\frac{1}{2}$ -wave dipoles using $\frac{1}{4}$ " copper tubing on ceramic standoffs or beam antennas fed with either home-made balanced line or coax.

Of course, FCC licenses and permits were required to operate town WERS radios. An FCC WERS station license application required a town's plan with a map of station locations, a plan of operation, make and model of radios, access and inspection information, operator vetting and loyalty procedures, plan of frequency measurement, and an explanation of all intended communications. A four-letter call-sign was then assigned to a town's entire Civil Defense radio operation.



*WERS radio station WJWM Control Point. Note the National 1-10 receiver and frequency meter
(Library of Congress photo)*



Wellesley Civil Defense Telephone Receiving Room at the Report Center, February 1942.

In December of 1942 the FCC granted the town of Wellesley a permit to construct and operate radio stations under the nationwide War Emergency Radio Service. This was the beginning of the Wellesley Civil Defense communications system for the war. The call letters are unknown.

Ervin L. Crandell W1MP of Wellesley, Thaxter A. Williams and Jonathan Roehrig W1ENE of Auburndale installed transmitters and receivers at the 14 zone posts, the Report Center, and at Police and Fire headquarters with the assistance of fire and light departments. Using the ARRL's *1942 Defense Edition Handbook* and Neilson and Hornung's *Radio Operating*

47 CARISBROOKE ROAD 15 miles West of Boston
WELLESLEY HILLS, MASS. U. S. A.

RADIO 64M3 UR FONE SIGS HR

9:27 AM 12/2 1946 RST 65.49 RCVR HR

FREQUENCY 28.7 Mc NC 200 + DB 20

PSE QSL TKS XMTR 400 WATTS INPUT

73 PR 8005s MOD BY PR 811s

ANTENNA 3 Element Beam

REMARKS Fine WSO Wally WILLARD BRIDGES

WINWO



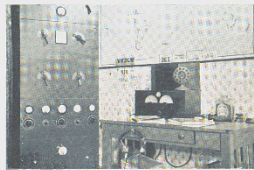
10 APPLETON ROAD **W1FFO** CAMBRIDGE, MASS.
U. S. A.

Radio
ur sigs wld 19
M., E. S. T.

R. S. T.
on mc.

Ur QSL will be highly valued
and would help make the QSO
more personal and complete.

73's
TED HALE



Xmitter on 80, 40, 20, 10
6L6 Osc.
50 Dblt.
RK 20 Buffer
PP 802 Final on 20 and 10.
PP 301A Final on 80 and 40.
Input up to 800 watts.

Receiver R.M.E. 60
Ant. 40 meter Zepp.

WAC on 40 and 20

©1942, 1943, 1944

Questions and Answers book, some Wellesley hams such as Willard Bridges (later W1WNO) and Ted Hale W1FFO helped Wellesley Civil Defense to operate and teach volunteers. Willard and Ted later became charter members of our club in 1951. Operators who obtained their third class radiotelephone licenses, many of whom were boy scouts and school students, reported to communications chair Jim Moir who provided each with a War Emergency Operators Permit.

By January 7, 1943, over 500 people took their radio exam in Wellesley, with some testing at the Boston Custom House for their Third Class Radiotelephone Operators Permit for CD-WERS use in Wellesley. A second exam date was announced for January as the town's radio gear was installed at the posts. The Report Center had volunteers operate two-hour shifts in the mornings, with each man working once per week. Volunteers also manned other posts such as police and fire stations.

Boston, Newton and Wellesley were well organized civil defense towns, and this radio effort used homebrew and commercial equipment to hold nets to pass test, planning messages and the radio system supported the town's defense drills. By November 1943, there were some 223 WERS stations in over 35 states, many with hams as leaders and volunteers. After the allied victory and the end of the war on June 30, 1945, WERS was disbanded, and the hometown civil defense efforts were shelved. Hams who served abroad came home and started families. The folks from home Civil Defense groups, war factory workers and young veterans started clubs for enjoyment and ham radio thrived.

In this article we described our archives and the early history of the Wellesley Civil Defense in World War II, a system which was renewed for the Atomic age. In our next article, we will explore how our club was formed in the early 1950s and its connections with Wellesley Civil Defense.

Dan Brown
W1DAN

References (not to be published in the Spark Gap)

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